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AMENDMENTS

In The Claims

Claim 1. (currently amended) A method of forming a bump on a wafer, wherein the wafer has an active surface, and the active surface is provided with a passivation layer and a bonding pad exposed by the passivation layer, the method comprising:

forming an adhesive layer on the active surface of the wafer to cover the bonding pad and the passivation layer;

forming a barrier layer on the adhesive layer;

forming a wettable layer on the barrier layer;

forming a photomask on the wettable layer by a photolithography process, wherein the photomask exposes a portion of the wettable layer;

removing the exposed wettable and sequentially the barrier layer and the adhesive layer thereunder by etching, until the active surface of the wafer is exposed;

removing the photomask;

bonding a plurality of conductive studs onto the wettable layer by wire bonding, wherein the conductive stud is made of a material selected from tin/lead alloy, leadless alloy and pure tin, and each~~the~~ conductive stud has a top surface and a bottom surface opposite to the top surface, the bottom surface being in contact with the wettable layer and the top surface being flattened by polishing, so that the top surfaces of the conductive studs are coplanar; and

performing a reflow process to form a plurality of ball-shaped bumps.

Claim 2. (original) The method of claim 1, wherein the adhesive layer is formed of titanium, titanium tungsten alloy, aluminum and chromium.

Claim 3. (original) The method of claim 1, wherein the barrier layer is formed of a material selected from a group consisting of nickel vanadium alloy, chromium copper alloy, and nickel.

Claim 4. (original) The method of claim 1, wherein the wettable layer is formed of a material selected from a group consisting of copper, palladium, and gold.

Claim 5. (original) The method of claim 1, wherein the conductive stud is formed of a material selected from tin lead alloy with high lead percentage of more than 90%.

Claim 6. (original) The method of claim 1 wherein the conductive stud is formed of a material selected from tin copper alloy, tin silver alloy, tin magnesium alloy, tin zinc alloy, indium silver alloy, tin bismuth alloy, tin indium alloy, and bismuth indium alloy.

Claim 7. (previously canceled).

Claim 8. (original) The method of claim 1, wherein the step of bonding the conductive stud onto the wettable layer comprises:

providing a wire;

melting one tip end of the wire to form a ball;

pressing the ball onto the wettable layer; and

separating the ball from the wire to form the conductive stud on the wettable layer.

Claim 9. (original) The method of claim 8, wherein the ball is pressed onto the wettable layer while applying ultrasonic wave.

Claim 10. (currently amended) A method of forming a bump on an active surface of a

wafer, the method comprising:

forming an under ball metallurgy (UBM) on a redistribution layer on the active surface of the wafer;

forming a photomask on the UBM by photolithography to partially expose the UBM;

removing the exposed portion of the UBM by etching, until the redistribution layer on the active surface of the wafer is exposed;

removing the photomask;

bonding a plurality of conductive studs onto the UBM by wire bonding, wherein eachthe conductive stud has a top surface and a bottom surface opposite to the top surface, the bottom surface being in contact with the UBM and the top surface is flattened by polishing so that the top surfaces of the conductive studs are coplanar; and

performing a reflow process to form a plurality of ball-shaped bumps.

Claim 11. (previously presented) The method of claim 10, wherein the step of forming the UBM onto the active surface of the wafer comprises:

forming an adhesive layer on the active surface of the wafer;

forming a barrier layer on the adhesive layer; and

forming a wettable layer on the barrier layer.

Claim 12. (original) The method of claim 11, wherein the adhesive layer is formed of a material selected from a group of titanium, titanium tungsten alloy, aluminum, and chromium.

Claim 13. (original) The method of claim 11, wherein the barrier layer is formed from a material selected from a group consisting of nickel vanadium alloy, chromium copper alloy, and

nickel.

Claim 14. (original) The method of claim 11, wherein the wettable layer is formed of a material selected from a group consisting of copper, palladium, and gold.

Claim 15. (original) The method of claim 10, wherein the conductive stud is formed of leadless alloy.

Claim 16. (original) The method of claim 10, wherein the conductive stud is formed of a material selected from a group consisting of tin copper alloy, tin silver alloy, tin magnesium alloy, tin zinc alloy, indium silver alloy, tin bismuth alloy, tin indium alloy, bismuth indium alloy, and tin.

Claim 17. (original) The method of claim 10, wherein the conductive stud is formed of tin lead alloy.

Claim 18. (original) The method of claim 10, wherein the conductive stud is formed of tin lead alloy with high lead percentage of more than 90%.

Claim 19. (previously canceled).

Claim 20. (previously presented) The method of claim 10, wherein the step of bonding the conductive stud onto the UBM comprises:

providing a wire;

melting one tip end of the wire to form a ball;

pressing the ball onto the wettable layer; and

separating the ball from the wire to form the conductive stud on the wettable layer.

Claim 21. (original) The method of claim 20, wherein the ball is pressed onto the wettable

layer while applying ultrasonic wave.

Claim 22. (currently amended) A method of forming a bump on an active surface of a wafer, the method comprising:

forming a UBM on the active surface of the wafer;

~~partially removing the UBM, until the active surface of the wafer is exposed; and~~

bonding a plurality of conductive studs onto the UBM by wiring bonding, wherein each~~the~~ conductive stud has a top surface and a bottom surface opposite to the top surface, wherein the bottom surface is~~being~~ in contact with the UBM and the top surface is flattened by polishing for coplanarity after the conductive stud is bonded onto the UBM; and

partially removing the UBM using the above conductive studs as masks until the active surface of the wafer is exposed.

Claim 23. (currently amended) The method of claim 22, further comprising a step of performing a reflow process to shape the conductive stud in the form of ball after partially removing~~bonding a conductive stud onto~~ the UBM.

Claim 24. (original) The method of claim 22, wherein the step of forming the UBM on the active surface of the wafer comprises:

forming an adhesive layer on the active surface of the wafer;

forming a barrier layer on the adhesive layer; and

forming a wettable layer on the barrier layer.

Claim 25. (original) The method of claim 24, wherein the adhesive layer is formed of a material selected from a group of titanium, titanium tungsten alloy, aluminum, and chromium.

Claim 26. (original) The method of claim 24, wherein the barrier layer is formed of a material selected from a group consisting of nickel vanadium alloy, chromium copper alloy, and nickel.

Claim 27. (original) The method of claim 24, wherein the wettable layer is formed of a material selected from a group consisting of copper, palladium, and gold.

Claim 28. (original) The method of claim 22, wherein the conductive stud is formed of leadless alloy.

Claim 29. (original) The method of claim 22, wherein the conductive stud is formed of a material selected from a group consisting of tin copper alloy, tin silver alloy, tin magnesium alloy, tin zinc alloy, indium silver alloy, tin bismuth alloy, tin indium alloy, bismuth indium alloy, and tin.

Claim 30. (original) The method of claim 22, wherein the conductive stud is formed of tin lead alloy.

Claim 31. (original) The method of claim 22, wherein the conductive stud is formed of tin lead alloy with high lead percentage of more than 90%.

Claim 32. (previously cancelled).

Claim 33-38. (currently cancelled).